



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

| | | | | |
|--|-------------|----------------------|--------------------------------|------------------------|
| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
| 10/591,223 | 08/31/2006 | Roger John Leach | COLGRA P68AUS | 7816 |
| 20210 | 7590 | 04/13/2011 | | |
| DAVIS & BUJOLD, P.L.L.C. 112 PLEASANT STREET CONCORD, NH 03301 | | | EXAMINER KHATRI, PRASHANT J | |
| | | | ART UNIT 1783 | PAPER NUMBER |
| | | | MAIL DATE 04/13/2011 | DELIVERY MODE PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/591,223

Applicant(s)

LEACH, ROGER JOHN

Examiner

PRASHANT J. KHATRI

Art Unit

1783

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 January 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 27, 28, 30-38 and 40-50 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 27, 28, 30-38 and 40-50 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-845)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

In response to Amendments/Arguments filed 1/19/2011. Claims 27-28, 30-38, and 40-50 are pending. Claims 27-28, 31-34, 37-38, 40-41, 45, and 47-50 were amended.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 27-28, 30-38, 41, and 45-49 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.
3. Claims 33, 41, and 48 recite the limitation "approximately 6 mm or less". It is noted that the term "approximately" would include values that are above 6 mm. The specification recites "6 mm or less" and as such, the phrase "approximately 6 mm or less" would constitute new matter since the specification does not support values above 6 mm which the term "approximately" includes.
4. Claim 45 recites the phrase "a source of infra-red radiation located in proximity to the second surface of the glass substrate". While it is noted that Figure 3 shows a proximity, it is noted that the accompanying disclosure of Figure 3 also recites that

distance between the infrared source and second surface of the glass substrate is at a spacing of 3 mm above the lid of the infrared source and 75 mm above the infrared lamps (***substitute specification dated 8/31/2006; pp. 4-5, para. 028***). As such, the broad disclosure of "proximity" is not supported by the specification as originally filed since there are specific values disclosed relative to Figure 3 in the specification as shown above. Claims 27-28, 30-38, and 46 are rejected as being dependent upon claim 45. Clarification is requested.

5. Claim 47 recites the limitation "the first border having a greater width than a width of the second border to reduce thermal stress in the glass substrate". While it is noted that Figures 1 and 5 show a first border having a greater width than the width of the second border, it is noted that the corresponding disclosure recites specific values of 6 mm or less and 100-150 mm (***substitute specification dated 8/31/2006; p. 6 for example***). As such, it is not clear where support for the broad disclosure of the first border having a greater width than the width of the second border as presently claimed is found. Clarification is requested.

6. Claim 49 recites the limitation "a source of infra-red radiation located in proximity to the second surface of the glass substrate". While it is noted that Figure 3 shows a proximity, it is noted that the accompanying disclosure of Figure 3 also recites that distance between the infrared source and second surface of the glass substrate is at a spacing of 3 mm above the lid of the infrared source and 75 mm above the infrared lamps (***substitute specification dated 8/31/2006; pp. 4-5, para. 028***). As such, the broad disclosure of "proximity" is not supported by the specification as originally filed

since there are specific values disclosed relative to Figure 3 in the specification. Claim 49 also recites the limitation "glass lid". While it is noted that the phrase "glass lid", is found within the specification, it is noted that the phrase "glass lid" is used in reference to a lid of borosilicate glass and not broadly all glasses. As such, the phrase "glass lid" does not have adequate support for all glasses.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 27-28, 31, 37, 45-46, and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gerhardinger et al. (***US 5714199***) in view of Luski et al. (***US 20030079369***).

9. Gerhardinger et al. disclose a method for applying a polymer powder to a preheated substrate and article thereof. Concerning claims 45-46 and 50, Gerhardinger et al. disclose preheating a glass substrate and then applying a pre-polymer onto a surface of the substrate and then allowing the coating to cure (***abstract; FIGS. 1 and 4; cols. 3-4, lines 23+***). Examiner notes the preheating of the substrate allows durable and abrasion resistant coatings that have excellent adhesion to the substrate (***col. 7, lines 36+; abstract***). Examiner notes that the coating may be applied to the top surface (***FIG. 4; col. 4, lines 48+***). Concerning the presently claimed thermosetting

powder, Gerhardinger et al. disclose the pre-polymer is an epoxy pre-polymer or epoxy/polyester powder and may be thermosetting (**col. 5, lines 1+**). Regarding claims 27-28, Gerhardinger et al. disclose the use of a silane may be included within the powder (**col. 5, lines 19+**) or sprayed on prior to the application of the pre-polymer powder (**col. 9, lines 29+**). Concerning claim 37, Examiner takes the position that the application of multiple coatings of the pre-polymer would have been obvious to add multiple layers in order to achieve the desired aesthetic appeal. However, Gerhardinger et al. is silent to heating the glass substrate from the second surface.

10. Luski et al. disclose a process and apparatus for drying a film layer. Concerning the limitation of heating the glass from the second surface, Luski discloses forming a coating on a carrier substrate wherein the film layer is deposited and dried in a plurality of stages (**abstract; para. 0016-0021, 0042, 0045; FIG. 1**). Examiner notes that the film material may be comprised of a thermosetting material (**para. 0048-0055**).

Regarding 29 and 31, Luski discloses the carrier substrate, it is noted that the heating dries the layer from the bottom to the top and can be done by means of IR, heat lamps, and the like (**para. 0062**). Luski discloses that different compositions will have different drying requirements and one of ordinary skill in the art would know how to adjust the process accordingly (**para. 0046**). As such, Examiner takes the position that since the process of heating is the same as that presently claimed, the combination of Gerhardinger and Luski would inherently provide for the curing by means of conduction of the heat from the bottom to the top since glass is a known thermal conductor and heat rises from the bottom to the top. Further, it is noted that the temperature, volume,

velocity, and direction of the air produced can be controlled (*para. 0066-0068*). As such, one of ordinary skill in the art would have been able to optimize the temperature including the presently claimed "near-ambient temperature above the glass substrate" by routine experimentation. The process of heating from the second surface of the substrate carrier allows for uniform formation of the coating by eliminating the "skin effect" caused by fast drying methods and as a result, producing a coating that has little or no surface defects (*para. 0055, 0062-0066*).

11. However, note that while Luski et al. do not disclose all the features of the present claimed invention, Luski et al. is used as teaching reference, and therefore, it is not necessary for this secondary reference to contain all the features of the presently claimed invention, *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973), *In re Keller* 624 F.2d 413, 208 USPQ 871, 881 (CCPA 1981). Rather this reference teaches a certain concept, namely, heating from the second surface of a substrate carrier in order to form uniform coatings that do not have the "skin effect" and other surface defects formed by the coating and in combination with the primary reference, discloses the presently claimed invention.

12. All of the elements were known within the art. The only difference is a single disclosure containing all of the presently claimed elements. Gerhardinger et al. disclose a method for applying a polymer powder to a preheated substrate and article thereof. However, Gerhardinger et al. is silent to heating the glass substrate from the second surface. Luski et al. disclose a process and apparatus for drying a film layer upon a substrate carrier. The motivation to combine the above references is drawn towards the

method forming uniform coatings by eliminating the "skin effect" caused by faster drying methods and as a result, a coating that has little or no surface defects. Thus, it would have been obvious to one of ordinary skill in the art to apply the method as shown by Luski in order to produce coatings that do not have the "skin effect" and therefore, a uniform coating that has little or no defects.

13. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gerhardinger et al. (*US 5714199*) in view of Luski et al. (*US 20030079369*) as applied to claim 45 above, and further in view of Wang (*Book*).

14. Gerhardinger and Luski disclose the above but are silent to the IR heater having a reflective internal surface.

15. As evidenced by Wang, most infrared heaters have reflectors to focus the radiation to a target (*p. 8.32*).

16. All of the elements were known within the art. The only difference is a single disclosure containing all of the presently claimed elements. Gerhardinger and Luski disclose the above but are silent to the IR heater having a reflective internal surface. As evidenced by Wang, most infrared heaters have reflectors to focus the radiation to a target (*p. 8.32*). Thus, in order to improve efficiency of the IR heater, one of ordinary skill in the art would have applied a reflective internal surface to the IR heater of Luski.

17. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gerhardinger et al. (**US 5714199**) in view of Luski et al. (**US 20030079369**) as applied to claim 29 above, and further in view of Horinka et al. (**Journal article**).

18. Horinka discusses the relationship between frequency, wavelength, and energy level for infrared curing process of powder coatings. It is noted that wavelength is inversely proportional to frequency; therefore, at longer wavelengths, the frequency would be lower and at shorter wavelengths, the frequency would be higher. Furthermore, as disclosed by prior art low energy is equivalent to low temperatures and high energy to high temperatures (**p. 1**). Prior art additionally discloses that some systems may have controls whereby the voltage may be adjusted (**p. 2**). Examiner takes the position that controlling voltage would thereby control the energy disposed.

19. Note that while Horinka does not disclose all the features of the present claimed invention, Horinka is used as teaching reference, and therefore, it is not necessary for this secondary reference to contain all the features of the presently claimed invention, *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973), *In re Keller* 624 F.2d 413, 208 USPQ 871, 881 (CCPA 1981). Rather this reference teaches a certain concept, namely, the effect of frequency on infrared energy in order to show that frequency may be controlled by increasing or decreasing voltage and in combination with the primary reference, discloses the presently claimed invention.

Horinka is drawn to discussing the various factors associated with infrared curing during a powder coating process. Varying the frequency, or energy would be obvious to one with ordinary skill in the art as it is recognized that at higher energies, the material would

melt faster and for an even coating that does not degrade, a control would be added to the system.

20. Claims 40 and 42-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gerhardinger et al. (**US 5714199**) in view of Leach et al. (**US 5300174**).

21. Gerhardinger et al. disclose a method for applying a polymer powder to a preheated substrate and article thereof. Concerning claims 40 and 48, Gerhardinger et al. disclose preheating a glass substrate and then applying a pre-polymer onto a surface that is either forming the backing or the top of the substrate and then allowing the coating to cure (**abstract; FIGS. 1 and 4; cols. 3-4, lines 23+**). Concerning the presently claimed thermosetting powder, Gerhardinger et al. disclose the pre-polymer is an epoxy pre-polymer or epoxy/polyester powder and may be thermosetting (**col. 5, lines 1+**). Examiner notes the preheating of the substrate allows durable and abrasion resistant coatings that have excellent adhesion to the substrate (**col. 7, lines 36+; abstract**). However, Gerhardinger is silent to a metal foil extending inward by a distance within a range.

22. Leach et al. disclose a glass panel having the dimensions of 3 x 1.2 meters with a thickness of 28 mm having a foil backing and cured polyester powder-coating bonded by means of a silane adhesion promoter (**cols. 3-4, lines 54+; FIG. 1**). The metal foil is applied in the broadest sense from the side edge since, as shown in Figure 1; the metal foil is perpendicular to the side edge. Examiner notes that the present claims do not recite whether the foil encapsulates the side edge and as such, the instant limitation is

met since in the broadest sense, the foil extends from the side edge since the foil is perpendicular to the side edge plane. Examiner takes the position that the distance of the foil extending would depend upon the size of glass panel and the level of thermal variation of the panel and coating of the powder. As such, one of ordinary skill in the art would be able to determine by routine experimentation the amount the foil would extend. Concerning claims 42-43, it is noted that the thickness of the foil is 0.1 mm which is 100 microns (**col. 4, lines 6+**). Given that claim 43 recites the limitation "approximately 80 microns", it is noted that the phrase would include values above 80 microns. As such, Examiner takes the position that the disclosure of Leach would meet the instant claims. The motivation to apply the foil as shown by Leach is to equalize the thermal variations across the panel as well as a protective function for protecting coating against degradation from moisture and weathering (**col. 4, lines 6+**).

23. All of the elements were known within the art. The only difference is a single disclosure containing all of the presently claimed elements. Gerhardinger et al. disclose a method for applying a polymer powder to a preheated substrate and article thereof. However, Gerhardinger is silent to a metal foil extending inward by a distance within a range. Leach et al. disclose a glass panel having the dimensions of 3 x 1.2 meters with a thickness of 28 mm having a foil backing and cured polyester powder-coating bonded by means of a silane adhesion promoter. The motivation to apply the foil as shown by Leach is to equalize the thermal variations across the panel as well as a protective function for protecting coating against degradation from moisture and weathering. Examiner takes the position that the distance of the foil extending would depend upon

the size of glass panel and the level of thermal variation of the panel and coating of the powder. As such, one of ordinary skill in the art would be able to determine by routine experimentation the amount the foil would extend. Thus, it would have been obvious to one of ordinary skill in the art to apply the foil as shown by Leach to the powder coated glass of Gerhardinger.

Response to Arguments

24. Applicant's arguments filed 1/19/2011 with respect to the Gerhardinger and Luski references have been fully considered but they are not persuasive. Applicant asserts that there would be no motivation to apply the heating process of Luski to that of Gerhardinger and also that Gerhardinger teaches away from the present invention. Examiner respectfully disagrees and notes that col. 6, lines 56+ is drawn towards forming a coating formed on the back of the glass and not of Figure 4 which does not require the formation of the skin layer. As such, Applicant is not comparing the embodiment which is closest to the present claims. Therefore, the motivation to combine the process of Luski in order to cure evenly by providing heating means on the second surface of the substrate is still applicable. Applicants are reminded that according to MPEP 2141.01 (a), a reference may be relied on as a basis for rejection of an applicants' invention if it is "reasonably pertinent to the particular problem with which the inventor is concerned." A reasonably pertinent reference is further described as one which "even though it maybe in a different field of endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's

attention in considering his problem." Luski is, therefore, a reasonably pertinent reference because it teaches drying coatings from a second surface to uniformly cure said coatings to prevent coating failure, which is a function especially pertinent to the invention at hand. Examiner also notes that in the broadest sense, the three chambers of Luski each have a designated temperature would broadly be "pre-heated" and be at least partially polymerized prior to entering the last two chambers and as such, be analogous art. Regarding the present amendments with respect to the addition of features of the IR source, please see above for further details. As such, the rejections are maintained as shown above.

25. Applicant's arguments, see pp. 14-18, filed 1/19/2011, with respect to the rejections under Storrs and Boucher have been fully considered and are persuasive. The rejections under those references have been withdrawn. However, it is noted that there are new matter situations with respect to the amendments as shown above.

Conclusion

26. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PRASHANT J. KHATRI whose telephone number is (571)270-3470. The examiner can normally be reached on M-F 8:00 A.M.-5:00 P.M. (First Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Sample can be reached on (571) 272-1376. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>.

Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David R. Sample/
Supervisory Patent Examiner, Art Unit 1783

PRASHANT J KHATRI
Examiner
Art Unit 1783